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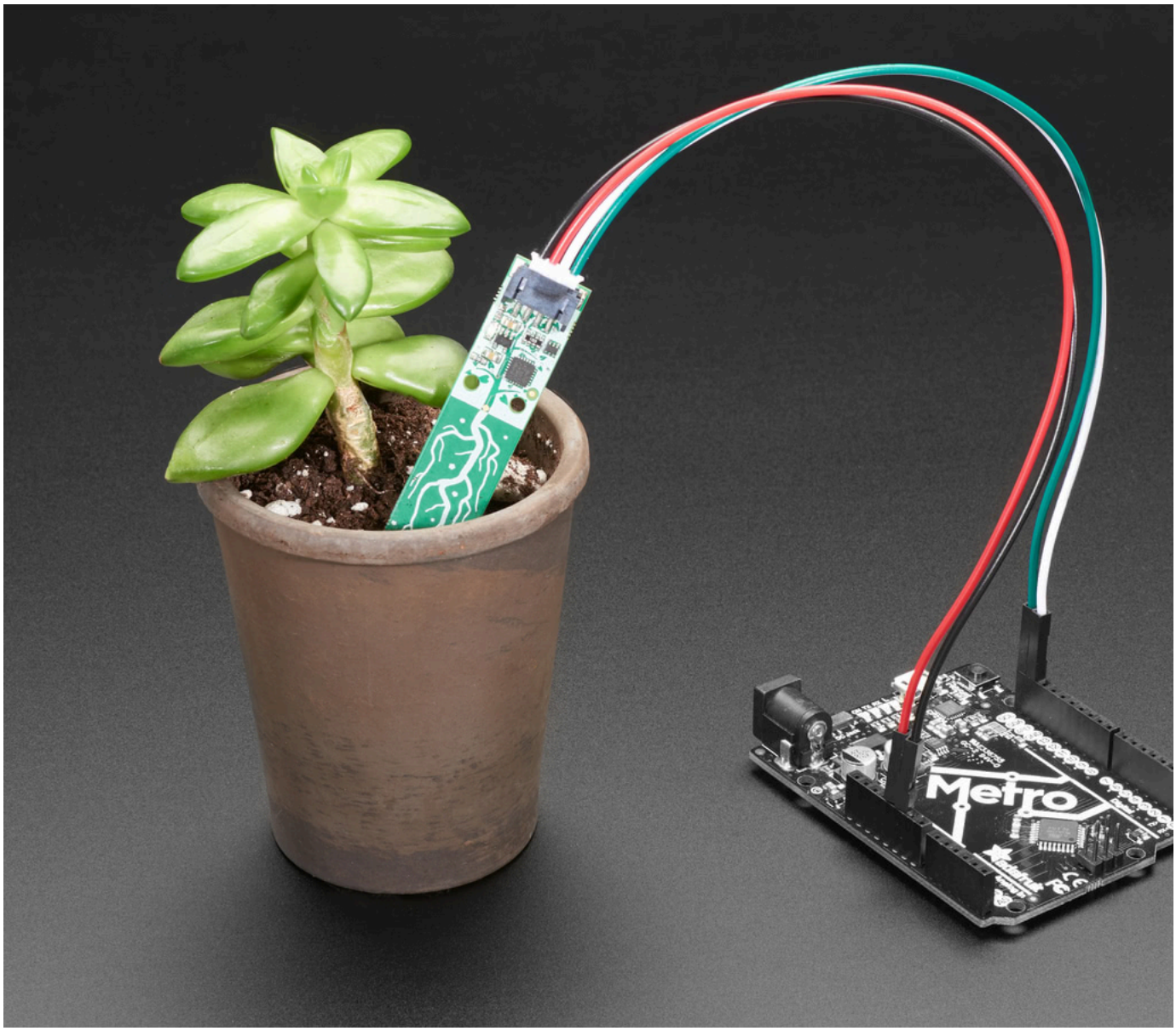

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AnneBarela Getting Started with the Pocket 386

Getting Started with the Pocket 386

by AnneBarela
Last updated November 04, 2024
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Getting Started

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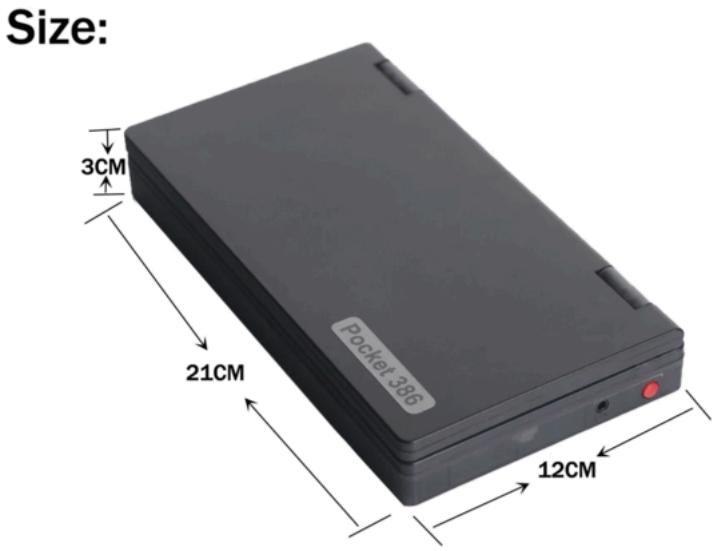
The Pocket 386 is the latest tiny retro PC to be available from China, joining the Book8086 and the Hand 386. I have read that the Hand 386 was discontinued due to part shortages.

The unit is small, but calling it something that fits in a pocket is stretching it.



Specifications

The Pocket 386 IBM PC Compatible Handheld Computer

- 386 SX (40MHz) embedded in an Ali M6117
- 8MB DRAM, 639k conventional, 7168k extended. 24k used by apps conventional, 64k in DOS HIGH memory, 615K conventional memory free.
- Replaceable VGA Card (CL-GD542X / TVGA9000 / CHIPS F655xx) (Mine has the Trident 8900C VESA VGA 1K video RAM according to the bundled Oldskool Benchmark Suite)
- Seamless Online Switching between 4:3 and 16:9 display ratios. (640x480 / 800x480) (Fn F4)
- CF Card (IDE Mode) Storage (2GB typical)
- USB Controller (CH375B) for USB Flash storage devices only
- OPL3 (Yamaha YMF262-M) Sound Card, speaker and 3.5mm line out jack
- Built-in Mouse using arrow keys
- OSD/SOSD LCD Control (Fn F4)
- 4000 mAh Lithium Battery
- 12V DC Input (1.5 amp supply provided)
- External Interfaces:
  - Serial RS-232 (using a MAX211 chip to get RS-232 levels using an internal daughter card and external dongle)
  - Centronics Parallel (printer)
  - Card with VGA, PS/2 keyboard and PS/2 mouse connectors
  - ISA bus connection (card sold separately)

- ISA/GPIO connection (no daughtercard is apparently available, documentation below for pinout and in datasheet) - advanced

There is no provision for a coprocessor. The only internally replaceable item besides battery and storage is the serial card which uses a plug to access the ISA bus.

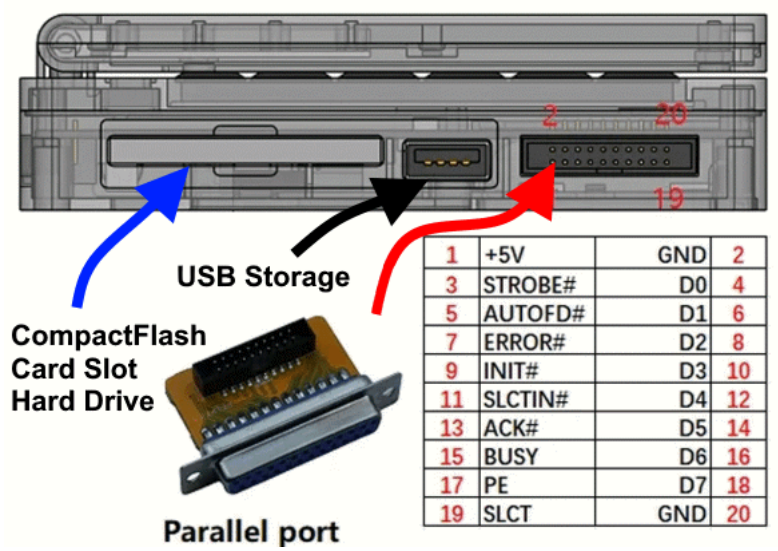
Storage

The Compact Flash card may be removed on the left side of the base. Mine is 2GB and is a Kingston unit that is worn and has a 2009 date sticker. Backing the card up on receipt and routinely would be a good idea.

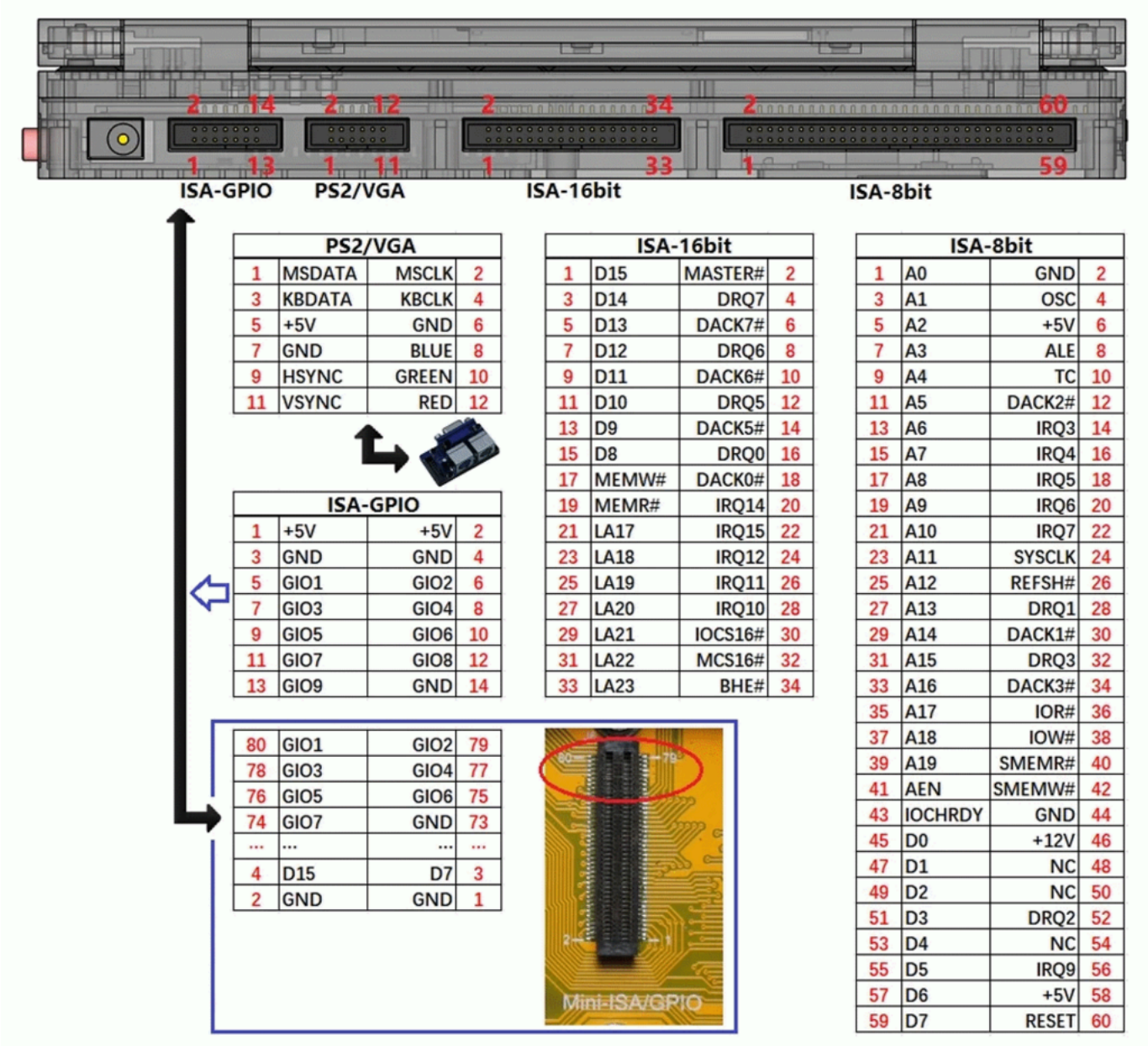
The manufacturer recommends using the program Ghost (Norton Ghost?) to backup and restore disk images. I had to ask for the Windows 95 software for this machine from DZT's store and I was sent RAR images of Ghost and the Windows 3.11 and Windows 95 disk images and the Ghost program was with that. Instructions on use are in the terse User's Guide. If you order on a store other than DZT on AliExpress, the files may not be available.

External Ports

Like its brethren, the device has expansion ports using a ribbon cable and a daughterboard. Daughterboards come bundled with the package I bought and include Parallel (Centronics) with DB-25 female connector (IBM "standard"), serial with a DB-9 connector (IBM "standard") and a card with VGA (Tight DB-15 standard) coupled with two PS/2 ports for external mouse and keyboard.



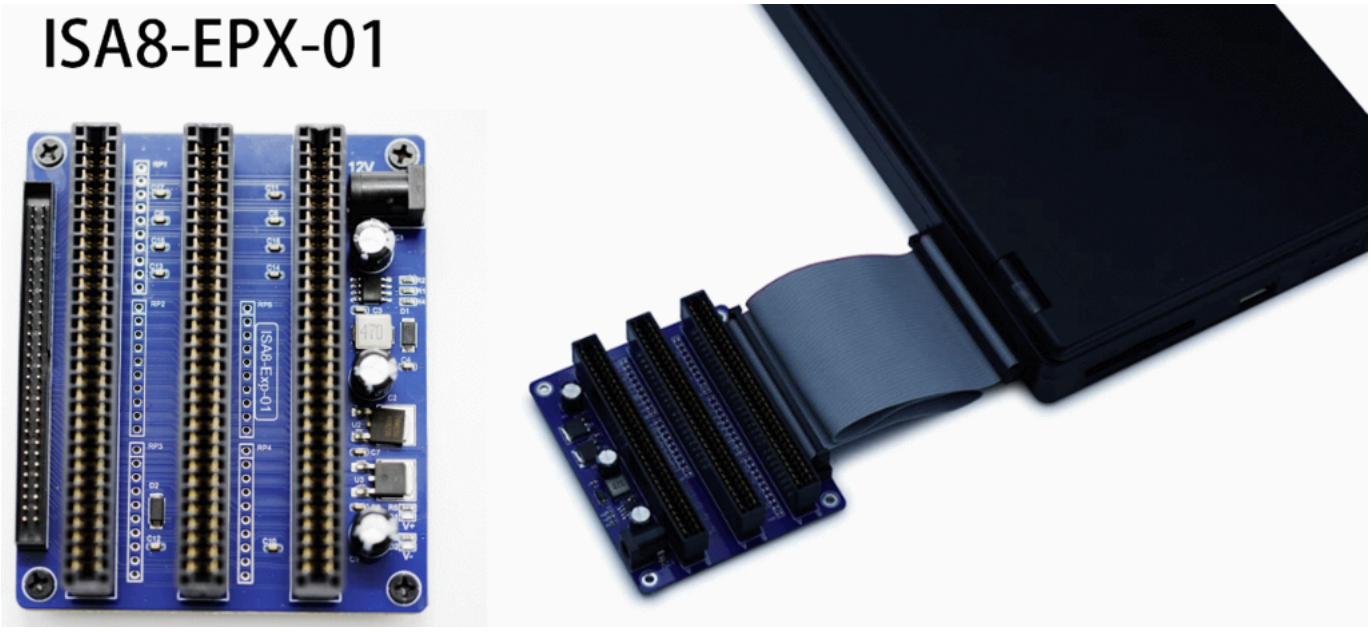
Left Side



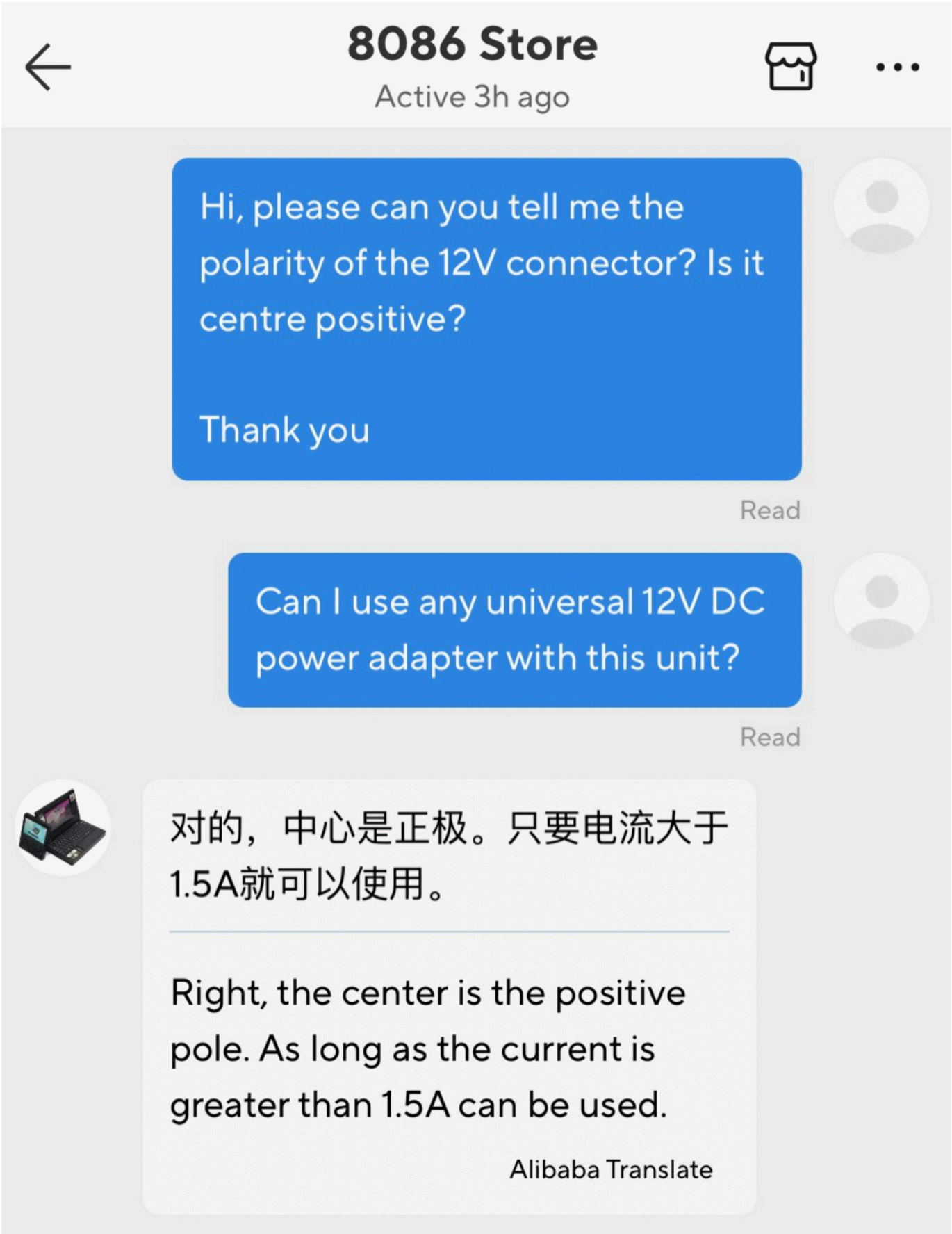
Rear Side

The External ISA Bus Expansion Capability (sold separately)

The ISA Bus Expansion Card is sold separately. It takes 12 volts (not supplied) at unknown amperage. The ISA slots are not keyed so it is possible to accidentally put a card in backwards. This Vogons thread shows the correct orientation. A video review is not kind and the follow-on video.



The power supply required by the expansion bus, per the seller (note this is not supplied or sold by the store):


8086 Store
Active 3h ago
Hi, please can you tell me the polarity of the 12V connector? Is it centre positive?
Thank you
Read
Can I use any universal 12V DC power adapter with this unit?
Read
对的，中心是正极。只要电流大于1.5A就可以使用。
Right, the center is the positive pole. As long as the current is greater than 1.5A can be used.
Alibaba Translate

Information from Alibaba, credit: Gabriele Rizzetto

Computer Power

The power supply is external and is 12v, 1.5 amps. On ordering, one can select from, US, AUS, or EU plugs.

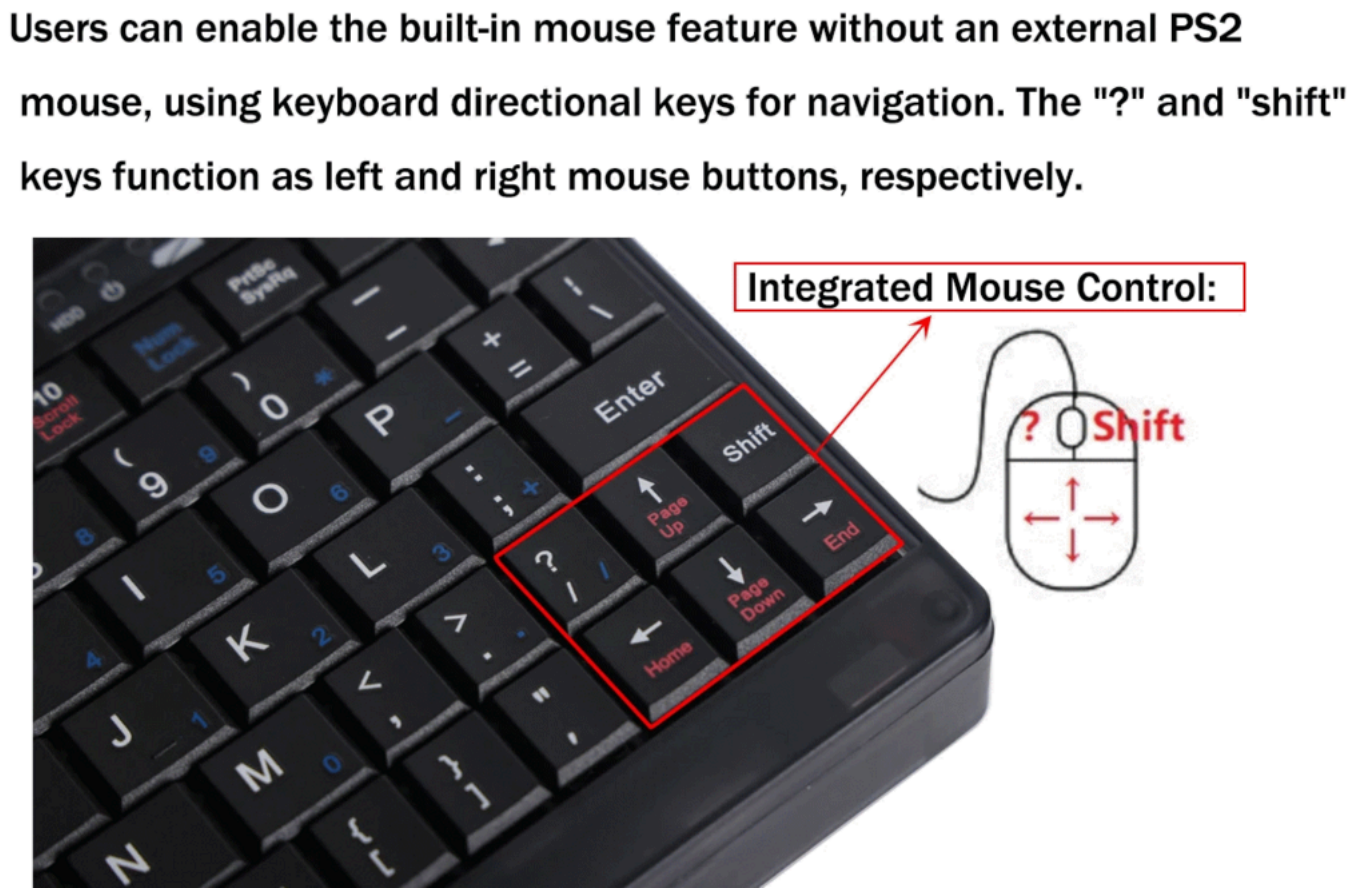
The internal battery is rated at 4000 mAh.

A small red LED near the right front corner of the keyboard turns red when charging, blue when charged.

If you use the ISA8-EXP-01 ISA Bus expansion card, that also requires 12 volts. See above for more.

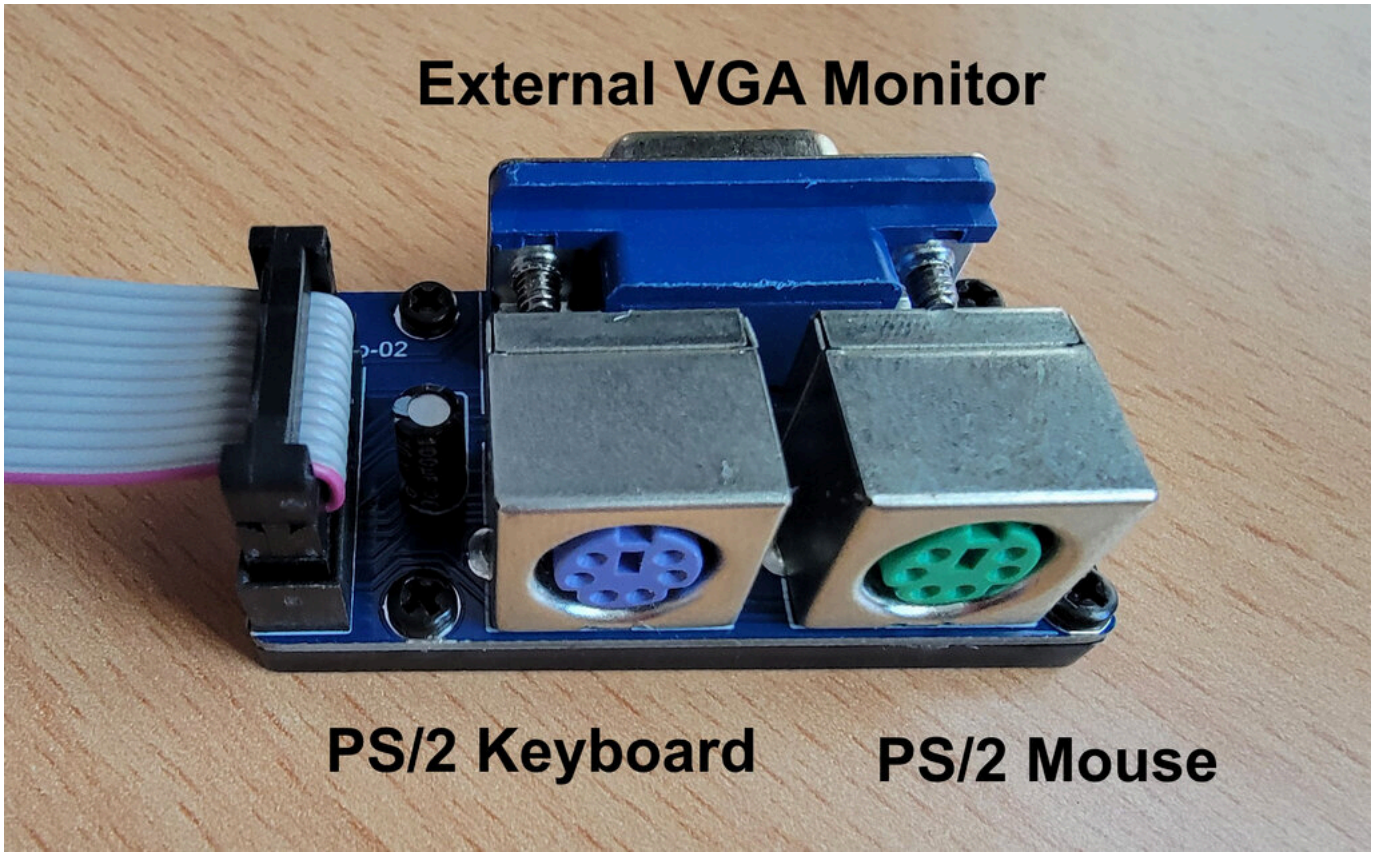
Mouse (via keyboard)

While the mechanism to use the arrow keys as a mouse helps, for example in Windows, the implementation is not easy to use.


Users can enable the built-in mouse feature without an external PS2 mouse, using keyboard directional keys for navigation. The "?" and "shift" keys function as left and right mouse buttons, respectively.
Integrated Mouse Control:
? Shift
Enter
Shift
Page Up
End
Page Down
Home

The mouse click and drag is not possible with the keypad mouse emulation according to users and my own testing. This makes full use of Windows difficult.

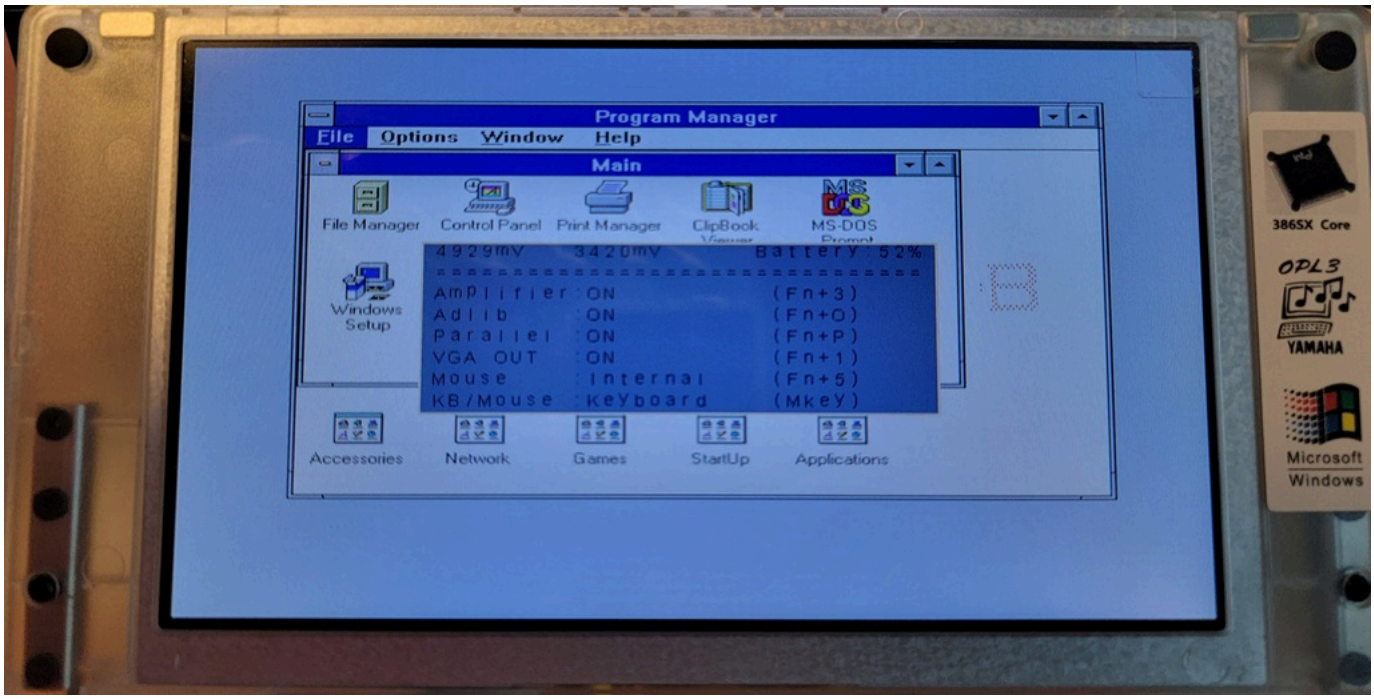
Serious mouse users would likely be better off using a PS/2 mouse connected via the VGA-PS/2 dongle. Press the red Fn key then F5 to get the "Super On-Screen Display (SOSD) pop up on screen, select Fn and 5 (not F5) to toggle the mouse to External.



If you chose to use the external PS/2 mouse port, you need to enable it and disable the keypad mouse emulation. See screen below.

Enable/Disable Menu

Certain Fn key combinations enable or disable hardware features:



To access Red Function keystrokes, the `Fn` button is used:

Per the screen above:

- Amplifier on/off Fn + 3 (mutes the speaker, audio only on 3.5mm port)
- Adlib OPL3 sound emulation on/off Fn + O
- Parallel printer port enable Fn + P
- VGA output on/off Fn + 1
- Mouse internal / external Fn + 5 (a system reboot is needed to take effect), internal and PS/2 cannot be active at the same time. **Mouse dragging appears to not be supported with the keyboard mouse.**
- Keyboard / Mouse toggle functionality - use the Menu key to the right of the spacebar (blue circle)

Software

The unit comes with MS-DOS 6.22 and Windows for Workgroups 3.11. The total space used on the CF card is 168Mb.

Bundled Applications

Besides MS-DOS 6.22 and Windows for Workgroups 3.11, the following is on the compact flash "Hard Drive" (note on the CF card that came with my unit in July 2024):

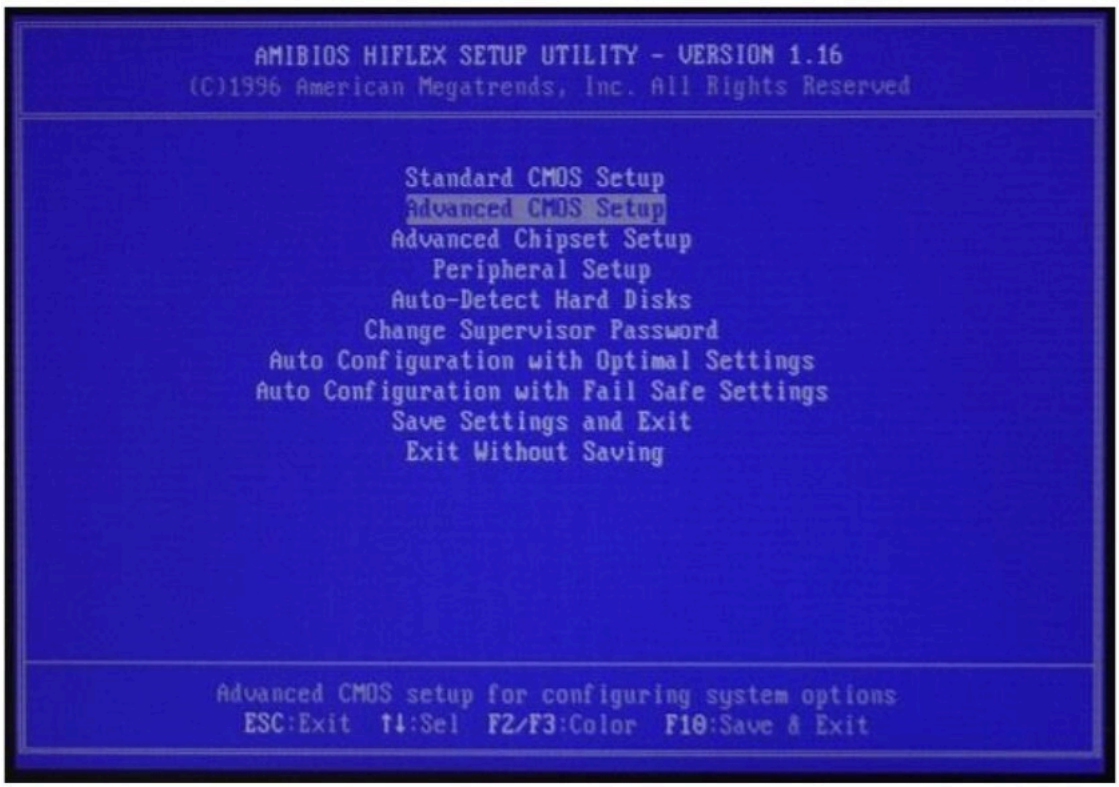
- Turbo C (TC)
- Turbo BASIC (TB)
- TWAY V3.2 braphical menu bar TSR (TW) - Chinese
- TEST\Topbench - The Oldskool Benchmark Suite - score: 76
- UCDOS 98 - apparently a Chinese DOS program
- Foxbase
- HDCOPY
- PCBASIC
- Windows 3.11 install files (WIN311)
- 3D 3D graphics test program
- GAME - directory of games
    - DOOM
    - Duck
    - DUNE 2
    - FFC
    - HISTORIK
    - LAC
    - PAL
    - RAPTOR
    - SBVGM
    - SEA2
    - TYRIAN
    - WAR
    - WOLF3D
    - WAR2

Windows 95

The hardware specifications meet and slightly exceed the requirements for Windows 95. This does not mean users will have an excellent experience with Windows 95. The vendor I bought my unit from provided a software image in Norton Ghost format for the Windows 95 image. The images and Ghost were sent in RAR format. I used WinRAR to get the files but I have not put them on the Pocket 386. Check the thread on vcfed.org for software links.

BIOS

- Per Boot: AMI BIOS 7/15/1995
- To get into BIOS at boot: Press and hold the Delete key


AMIBIOS HIFLEX SETUP UTILITY - VERSION 1.16
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Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Peripheral Setup
Auto-Detect Hard Disks
Change Supervisor Password
Auto Configuration with Optimal Settings
Auto Configuration with Fail Safe Settings
Save Settings and Exit
Exit Without Saving
Advanced CMOS setup for configuring system options
ESC:Exit ↑↓:Sel F2/F3:Color F10:Save & Exit

Resources

The following resources are available online as of the time this Note was written:

8086cpu.com:

- Main Page
- 8086 Store on AliExpress
- User's Guide (PDF version 1.0)
- Schematic (PDF version 1.2)
- ISA Expansion Card and Cable

AliExpress:

- DZT's Store - where this line usually shows up first.
- ISA Expansion card and cable

Third party sites:

- Thread on Vogons - Pocket 386, the brother of Hand386 and Book8088, the story so far
- Thread from Foone - Mastodon
- Thread from Vintage Computer Federation (VCF)

Hacking:

- Reverse engineered LCD OSD/S-OSD control protocol
- RTC problem: the fix is to remove R38 next to the M6117D. The schematics say this component shouldn't be installed (NC), but they installed it anyway!

Resources:

- 3D printing files for port covers

Hardware:

- Datasheet for the Ali M6117 CPU chip
- POST codes for the Ali M6117

Troubleshooting

My PC (real-time) clock is not keeping time

Some early units populated R38 which the schematic says not to use. If the resistor is removed it should fix it. Later builds omit R38 and should not cause a problem.

This page (Getting Started with the Pocket 386) was last updated on November 04, 2024.

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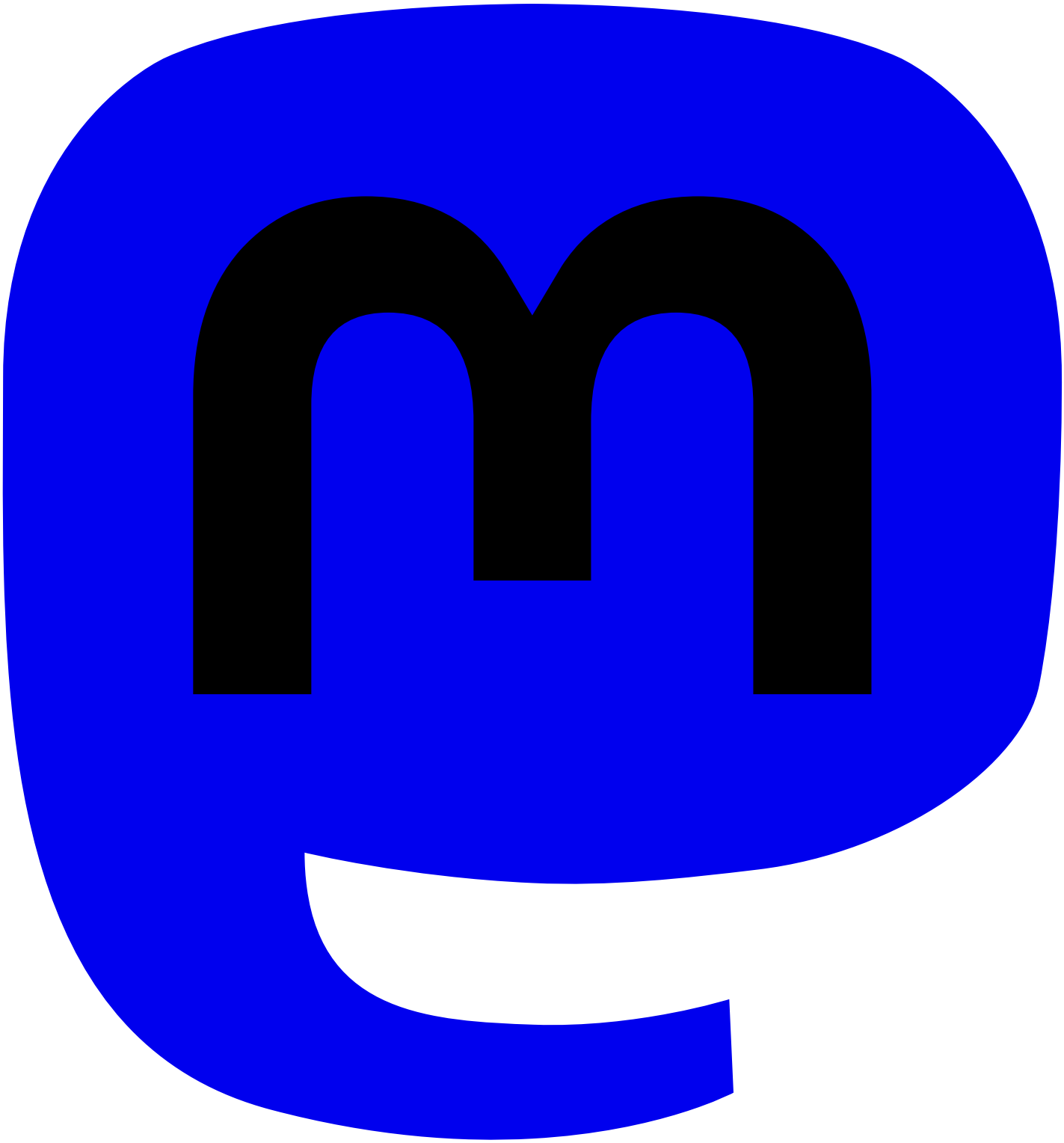
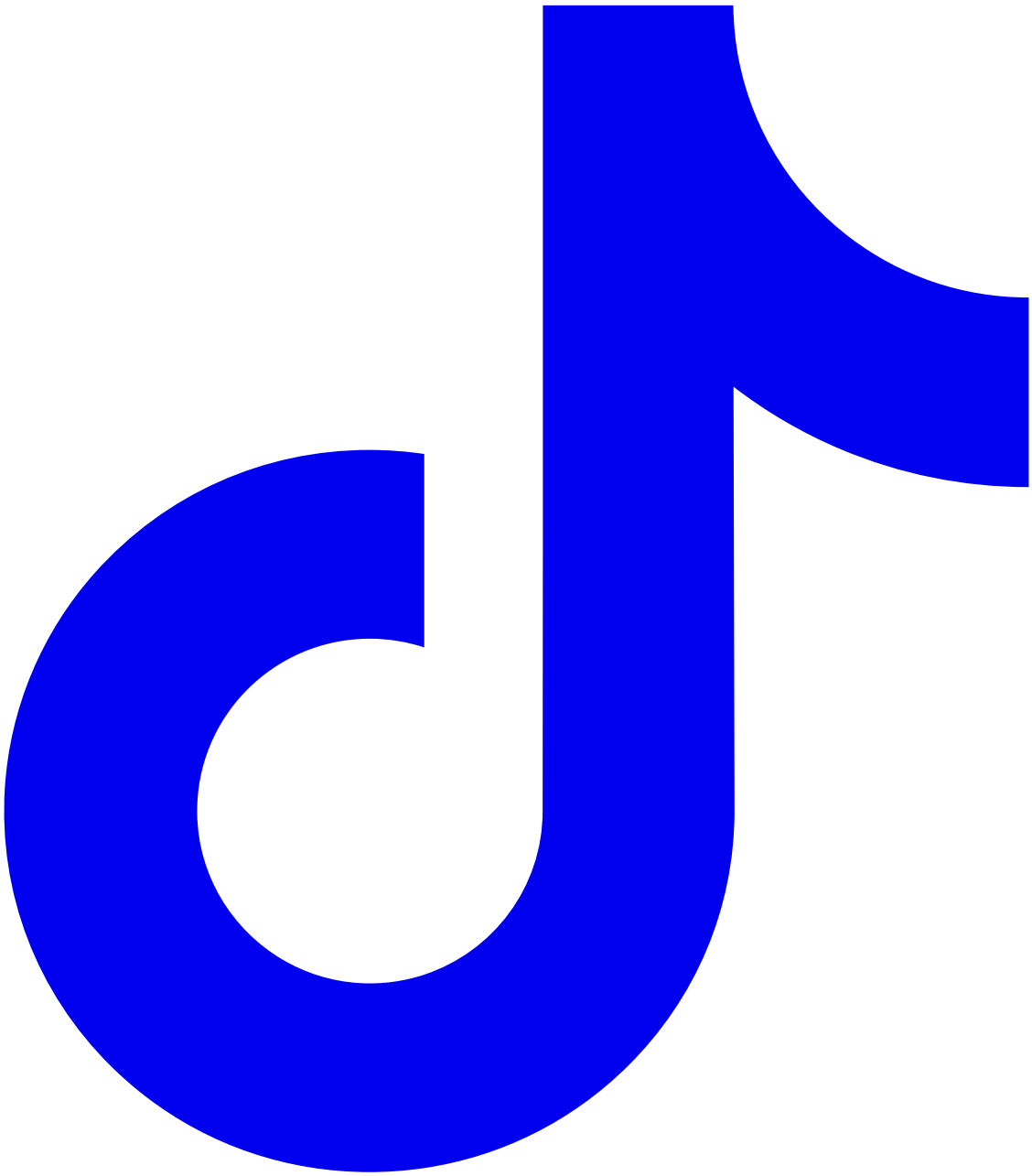
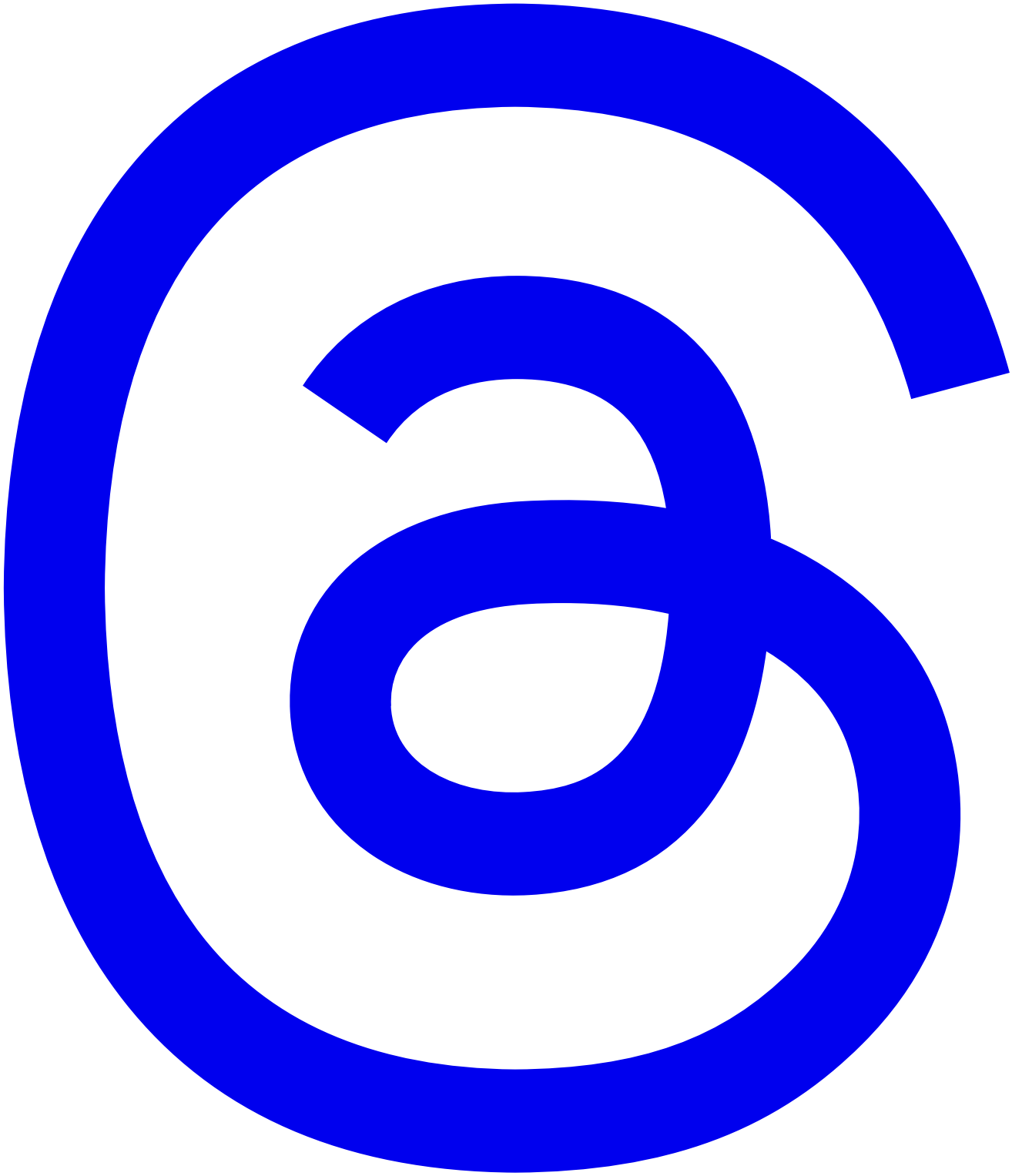
"In the beginner’s mind there are many possibilities, in the expert’s mind there are few"
Shunryu Suzuki







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